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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/707,816	11/07/2000	Noriaki Sugawara	NEC N00204	6776

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EXAMINER

SHENG, TOM V

ART UNIT	PAPER NUMBER
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2673

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DATE MAILED: 10/30/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/707,816

Applicant(s)

SUGAWARA ET AL.

Examiner

Tom V Sheng

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3-5,7-9,11-13,15 and 16 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 5,7 and 8 is/are allowed.
- 6) ☒ Claim(s) 1,3,4,9,11-13,15 and 16 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). ____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____ 6) ☐ Other: ____

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.

2. Claims 9 and 13 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

As for claim 9, the terms "an applied voltage" on lines 4-5 and "said applied voltage" on lines 8-9 and 12-13 are unclear as to how it is related to the red, green and blue video signals. Claims 11 and 12 are dependent on claim 9.

As for claim 13, the terms "an applied voltage" on lines 7, 13 and 19 are unclear as to how each occurrence is related to the respective red, green and blue video signals. Claims 15 and 16 are dependent on claim 13.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1, 3, 4, 9, 11 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Admitted Art in view of Kobayashi et al. (US Patent 6483496 B2).

As to claims 1 and 9, Admitted Art teaches a driving circuit (figure 19) for a color liquid crystal display (LCD 1) comprising:

a first gamma compensating circuit (gamma compensation circuit 4₁) for applying a gamma compensation only to a red video signal (S_{RC}) for an applied voltage in said color liquid crystal display and for outputting only a compensated red video signal (S_{RG});

a second gamma compensating circuit (gamma compensation circuit 4₂) for applying a gamma compensation only to a green video signal (S_{GC}) for said applied voltage in said color liquid crystal display and for outputting only a compensated green video signal (S_{GG});

a third gamma compensating circuit (gamma compensation circuit 4₃) for applying a gamma compensation only to a blue video signal (S_{BC}) for said applied voltage in said color liquid crystal display and for outputting only a compensated blue video signal (S_{BG});

a reference voltage generating circuit (reference voltage generating circuit 3) for supplying generated reference voltages (V_L , V_M , V_H) to said first gamma compensating circuit, said second gamma compensating circuit and said third gamma compensating circuit; and

a data electrode driving circuit (data electrode driving circuit 8) for driving corresponding electrodes (data or column electrodes) of said color liquid crystal display based on said compensated red video signal, said compensated green video signal and said compensated blue video signal.

Admitted Art does not teach gamma compensations **suitable only for red transmittance characteristics** in the first gamma compensating circuit, **suitable only for green transmittance characteristics** in the second gamma compensating circuit, and **suitable only for blue transmittance characteristics** in the third gamma compensating circuit. Moreover, Admitted Art does not teach a reference voltage generating circuit **supplying respectively independently generated reference voltages** to the first, second and third gamma compensating circuits.

Kobayashi teaches a reference voltage control circuit 100 (see figures 3 and 8). For each color, there is an adder 121(r,g,b) for adding a common brightness data BD and a sub-brightness data SBR, SBG or SBB that is specific to the characteristics of each of the RGB lines. Further, there is a selector 111(r,g,b) for selecting either an image data (DR, DG, DB) during the effective display period or a reference voltage data (CDR, CDG, and CDB) during the blanking period. See column 6, lines 10-33. Furthermore, the image data and reference voltage data are D/A converted afterwards by the D/A converter 2 and then sent to RGB driver 3 for driving LCD 4.

Kobayashi further teaches that by using different reference voltage data (CDR, CDG, CDB) and corresponding reference voltages, an optimum driving voltage can be applied for every RGB color to the LCD 4 in order to perform high quality display with high color reproducibility. See column 6, lines 39-61.

It would have been obvious for one of ordinary skill in the art at the time the invention was made to modify Admitted Art's reference voltage generating circuit in view of Kobayashi such that independently generated reference voltages would be supplied

to respective gamma compensating circuits due to the different transmittance characteristics of each color, because the display would be adjusted to the optimum brightness level of each color and resulting in high quality display with high color reproducibility.

As for claims 3, 4, 11 and 12, both Admitted Art and Kobayashi teach using independent reference voltages for the color signals, and further Admitted Art teaches how transmittance vary for each of the three primary colors (figures 22 and 24) from a minimum transmittance to a maximum transmittance that would allow one of ordinary skill in the art to utilize. Further, since the transmittance characteristics are independent, the reference voltage or data are naturally independently changeable.

Allowable Subject Matter

5. Claims 5, 7 and 8 are allowed.
6. Claim 13 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action. Claims 15 and 16 are dependent on claim 13 and would be allowable correspondingly.
7. The following is a statement of reasons for the indication of allowable subject matter: none of the prior arts of record teaches as for claim 5, the recitation "said gamma compensation including a first gamma compensation of voluntarily giving a luminance of a reproduced image to an input image luminescence and a second gamma compensation of said signals conforming to a red transmittance characteristics, a green transmittance characteristics and a blue transmittance characteristics of a red

video signal, a green video signal and a blue video signal, respectively” and other limitations of the claim, and as for claim 13, the recitations “a first gamma compensating circuit for applying gamma compensation only to a red video signal, said gamma compensation including a first gamma compensation ... and a second gamma compensation ...”, “a second gamma compensating circuit for applying gamma compensation only to a green video signal, said gamma compensation including a first gamma compensation ... and a second gamma compensation ...”, and “a third gamma compensating circuit for applying gamma compensation only to a blue video signal, said gamma compensation including a first gamma compensation ... and a second gamma compensation ...” and other limitations of the claim. Claims 7 and 8 are dependent on claim 5. Claims 15 and 16 are dependent on claim 13.

Response to Arguments

8. Applicant's arguments with respect to claims 1 and 9 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tom V Sheng whose telephone number is (703) 305-6708. The examiner can normally be reached on 8:30am - 5:00pm.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bipin Shalwala can be reached on (703) 305-4938. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3900.

Tom Sheng
October 26, 2003


Amare Mengistu
Primary Examiner